

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A61P37/04 A61K39/39 A61K9/127

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, BIOSIS, EMBASE, CHEM ABS Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category ° | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|---|-----------------------|
| X | US 2003/060440 A1 (VERTHELYI DANIELA ET AL) 27 March 2003 (2003-03-27) paragraph '0013! paragraph '0105! - paragraph '0113! paragraph '0116! paragraph '0138! paragraph '0140! paragraph '0154! - paragraph '0156! ----- | 1,4-8, 13-22 |
| X Y | US 2003/087848 A1 (BRATZLER ROBERT L ET AL) 8 May 2003 (2003-05-08) table 1 paragraph '0147! paragraph '0147! - paragraph '0150! paragraph '0169! paragraph '0188! ----- -/-- | 1-11, 13-22 12 |

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

° Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the International filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the International filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *Z* document member of the same patent family

Date of the actual completion of the international search

28 October 2004

Date of mailing of the International search report

23/11/2004

Name and mailing address of the ISA

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Authorized officer

Irion, A

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|---|-----------------------|
| X Y | US 2003/050268 A1 (BERG DANIEL J ET AL) 13 March 2003 (2003-03-13) table I paragraph '0158! - paragraph '0161! paragraph '0098! paragraph '0115! paragraph '0133! paragraph '0150! paragraph '0158! - paragraph '0161! paragraph '0044! | 1-11, 13-22 12 |
| X Y | WO 03/045431 A (SCHERING CORP) 5 June 2003 (2003-06-05) page 16; table 2; sequence 2 page 15, line 25 - line 31 claims 12,14 page 17, line 26 - line 28 | 1-11, 13-22 12 |
| X Y | WO 03/030656 A (BABIUK LORNE ALAN ; POTTER ANDREW ALLAN (CA); UNIV SASKATCHEWAN (CA);) 17 April 2003 (2003-04-17) page 4, line 3 - line 8 page 33, line 30 - page 34, line 6 page 37, line 4 - line 10 page 23, line 22 - line 27 page 7, line 16 - line 19 page 16, line 29 - line 31 page 17, line 21 - line 24 page 33, line 30 - page 34, line 1 page 37, line 4 - line 7 page 22, line 9 - line 12 page 18, line 11 - line 25 | 1-11, 13-22 12 |
| P,X | WO 2004/000351 A (RENNER WOLFGANG A ; BACHMAN MARTIN F (CH); CYTOS BIOTECHNOLOGY AG (CH)) 31 December 2003 (2003-12-31) page 53 - page 55 | 1-22 |
| Y | WO 03/024481 A (BACHMANN MARTIN F ; LIPOWSKY GERAD (CH); MAURER PATRICK (CH); MEIJERIN) 27 March 2003 (2003-03-27) page 110; table I | 12 |
| A | KRUG A ET AL: "Identification of CpG oligonucleotide sequences with high induction of IFN-alpha/beta in plasmacytoid dendritic cells" EUROPEAN JOURNAL OF IMMUNOLOGY, WEINHEIM, DE, vol. 31, no. 7, July 2001 (2001-07), pages 2154-2163, XP002292085 ISSN: 0014-2980 the whole document | 1-22 |

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|---|-----------------------|
| A | <p>KRUG ANNE ET AL: "CpG-A oligonucleotides induce a monocyte-derived dendritic cell-like phenotype that preferentially activates CD8 T cells." JOURNAL OF IMMUNOLOGY, vol. 170, no. 7, 1 April 2003 (2003-04-01), pages 3468-3477, XP002303132 ISSN: 0022-1767 the whole document</p> | 1-22 |
| A | <p>BLACKWELL SUE E ET AL: "CpG-A-induced monocyte IFN-gamma-inducible protein-10 production is regulated by plasmacytoid dendritic cell-derived IFN-alpha." JOURNAL OF IMMUNOLOGY, vol. 170, no. 8, 15 April 2003 (2003-04-15), pages 4061-4068, XP002303133 ISSN: 0022-1767 the whole document</p> | 1-22 |
| A | <p>KERKMANN MIREN ET AL: "Activation with CpG-A and CpG-B oligonucleotides reveals two distinct regulatory pathways of type I IFN synthesis in human plasmacytoid dendritic cells." JOURNAL OF IMMUNOLOGY, vol. 170, no. 9, 1 May 2003 (2003-05-01), pages 4465-4474, XP002303134 ISSN: 0022-1767 the whole document</p> | 1-22 |
| A | <p>WO 03/040308 A (ISHII KEN J ; KAWAKAMI KOJI (US); US GOVERNMENT (US); GURSEL IHSAN (US) 15 May 2003 (2003-05-15) cited in the application the whole document</p> | 1-22 |
| A | <p>GURSEL I ET AL: "Sterically stabilized cationic liposomes improve the uptake and immunostimulatory activity of CpG oligonucleotides" JOURNAL OF IMMUNOLOGY, THE WILLIAMS AND WILKINS CO. BALTIMORE, US, vol. 167, no. 6, 15 September 2001 (2001-09-15), pages 3324-3328, XP002228991 ISSN: 0022-1767 the whole document</p> | 1-22 |

INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP2004/008190

Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.: 15-17, 20-21
because they relate to subject matter not required to be searched by this Authority, namely:
Although claims 15-17 and 20-21 are directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this International application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP2004/008190

| Patent document cited in search report | | Publication date | Patent family member(s) | Publication date |
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| WO 03024481 | A | 27-03-2003 | EP 1450856 A2 WO 03024481 A2 US 2003099668 A1 | 01-09-2004 27-03-2003 29-05-2003 |
| WO 03040308 | A | 15-05-2003 | WO 03040308 A2 | 15-05-2003 |